GRACE MX II

Operating instructions

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Appendices

No.	Title	Type
1	BOSCH Drive Unit Performance I Intuvia |PowerPack 400 Charger	Original instructions
2	GATES CARBON DRIVE Manual for the system belt	Manual

Attachments

No.	Document	
A	Handover checklist	
B	GRACE MX II Pedelec service manual	
C	NuVinci N360	Technical manual
D	Avid (SRAM)	Technical manual
E	RockShox Sektor / RockShox Domain (SRAM)	Technical manual
F	SRAM X9 derailleur system	Technical manual

Explanations of symbols

To begin with, we would like to acquaint you with the meaning of the attention and hazard symbols which you can find in these operating instructions.

It is very important that you follow the information by the symbols.

Caution!

This caution symbol points out a potentially hazardous situation through which persons in the environment may sustain injury, or the product or objects may be damaged.

Danger!

Denotes an immediate danger through explosion, for instance by improper handling of the battery and charger.

Information!

This sign has useful information about how to handle your product.

Note!

This symbol points out that damage is possible on the vehicle.

Read the original operating manual!

This symbol refers to important information in the original operating instructions of the component manufacturers.

1. Your GRACE MX II

The GRACE MX II is a member of the class of electric power assisted cycles, or EPAC's. The motor only provides assistance when you apply force to the pedals.

The force applied by the rider is measured in terms of speed, pedalling frequency, and torque through which the motorised assistance is adjusted. The maximum assisted speed is 25 km/h (15.5 mph) or 32 km/h (20 mph) in the USA as a Pedelec, or 45 km/h (28 mph) as an S-Pedelec. The electric motor switches off once this speed is reached. However, you are also free to travel faster than the maximum assisted speed with your own pedal power and without support from the electric motor.

1.1. About this operating manual

This operating manual is solely for the GRACE MX II range in the Pedelec- and S-Pedelec variants and frame sizes M and L for model year 2014. Follow the instructions and warnings for your own safety. Failing to do so may damage the bike and/or lead to personal injury,

For maintenance work and repairs, please talk directly to your dealer.

Also observe the important information in the original operating instructions of the component manufacturers available online:

Avid	www.sram.com/de/avid
Bosch	www.bosch-ebike.de
Busch + Müller	www.bumm.de
Cane Creek	www.canecreek.com
Gates Carbon Drive	www.carbondrivesystems.com
NuVinci	www.nuvinci.info
SRAM	www.sram.com
RockShox	www.sram.com/de/rockshox

1.2. Scope of supply

The GRACE MX II is delivered with:

- Bosch charger
- Transport safety mechanisms, x 2 for the braking system
- Keys x 2 for securing the battery pack
- GRACE MX II Manual
- GRACE MX II Service manual
- Reflectors 2 x (S-Pedelec only)
- Rear-view mirror (S-Pedelec only)
- Pedal reflectors, 2 pairs
- Instructions for the add-on components

The following components from the scope of supply do not come assembled at delivery as standard. However, they can be pre-assembled to the vehicle if so required. Please contact your GRACE dealer for more information.

- Mudguard: Curana C-Lite 26'' x 60 mm (MX II Urban only)
- Luggage rack: Tubus Vega (MX II Urban only)

1.3. Description of equipment on the GRACE MX II Urban

1	Saddle	10	Headlight
2	Rear light	11	Rigid fork, spring fork
3	Number plate holder*	12	Front wheel
4	Saddle post	13	Hydraulic disk brake
5	Centre motor	14	Crank and pedal
6	Rear wheel	15	NuVinci N360 drivetrain
7	Carbon belt	16	Centre kick stand
8	Battery housing	17	Stem
9	Side reflector*	18	Rear-view mirror*

* S-Pedelec version

1.4. Description of equipment on the GRACE MX II Trail

1	Saddle	10	Headlight
2	Rear light	11	Spring fork
3	Number plate holder*	12	Front wheel
4	Saddle post	13	Hydraulic disk brake
5	Centre motor	14	Crank and pedal
6	Rear wheel	15	SRAM derailleur system
7	Chain	16	Side stand
8	Battery housing	17	Stem
9	Side reflector*	18	Rear-view mirror*

* S-Pedelec version

1.5. Anti-tamper plate

The anti-tamper plate is located on the down tube under the battery. To see it, the battery will need to be removed.

1.6. Serial number

The serial number of your GRACE MX II is located on the down tube at the height of the motor. Please take a note of this serial number and keep it in a safe place.

1.7. Use of the vehicle as intended

The GRACE MX II **Pedelec** is a member of the class of electric power assisted cycles, or EPAC's. The motor only provides assistance when you apply force to the pedals.

The GRACE MX II **S-Pedelec** is a moped as opposed to a bicycle and as such is subject to local road traffic regulations (In Germany this is the German Road Traffic Regulations, StVZO). For this reason, the vehicle does not bear a CE mark as a motorbike would but a number plate as well as a chassis number registered with the Federal Motor Transport Authority in Germany. Please refer to the current version of the German traffic regulations StVZO from 1st June 2010 for information about guidelines, the equipment on mopeds for use on public roads.

Please pay attention to the following data when using the vehicle:

- the safety-related advice in this operating manual
- the "Technical data" chapter in this operating manual
- the country-specific road traffic regulations (in Germany this is the German Road Traffic Regulations, StVO)
- country-specific regulations for vehicle registrations (in Germany this is the German Traffic Registration Regulations, StVZO)

Before using it on main roads, first practice on your new GRACE MX II in an area with little traffic. Bear in mind that other road users may not be able to judge the high speeds you are riding at.

The active and passive lighting equipment required under technical safety regulations are installed in compliance with the StVZO. This technical safety equipment must be inspected regularly and when needed must be repaired by a technician.

The assembly of the following components is mandatory for the following Pedelec types to make the vehicle roadworthy according to the German StVZO:

- Reflectors 2 x (S-Pedelec)
- Rear-view mirror (S-Pedelec)
- Pedal reflectors (Pedelec/S-Pedelec)

Modifications to your GRACE MX II which result in an increase in the motor output and speed put your safety while riding at risk and can lead to your driver's licence being revoked or the loss of insurance coverage.

The total weight comprising the GRACE MX II incl. rider, accessories and luggage must not exceed the maximum permissible weight of 150 kg (330 lbs).

The GRACE MX II is not intended for persons with impaired physical, sensory or intellectual capabilities. GRACE MX II is also not suitable for children under 14 years.

Neither manufacturer nor dealer assume any liability for any damage resulting from use beyond what is specified in this operating manual or from non-compliance with technical safety instructions.

A helmet must be work at all times when riding the S-Pedelecs, and the bike must have an insurance plate. You must have an M-category driver's licence and must carry your licence with you at all times.

Neither manufacturer nor dealer assume any liability for any damage resulting from use beyond what is specified in this operating manual or from non-compliance with technical safety instructions.

Riding the GRACE MX II as an S-Pedelec with a bike trailer is not permitted.

GRACE MX II is not suitable for competitions.

2. First time use

2.1. Charging the battery

The battery is fitted to the down tube of your GRACE MX II. The battery can be recharged at any time either separately or while in the vehicle. Make sure the voltage set for your charger is the same as that of the power supply (110V or 230V).

Next, insert the plug into the socket of the charger. Next, connect the Bosch standard charger to the mains.

Connect the charger plug to the **battery which has been switched off.** The charger display flashes.

The battery comes partly charged. Before using, fully charge it. The battery is fully charged when all 5 LEDs are permanently lit.

After the battery has been fully charged, the charging will stop automatically. Disconnect the charger from the mains and the battery from the charger. The battery is switched off automatically.
The battery can be charged at any time without affecting its service life. Interrupting the charging does not damage the battery.

Read the information in the Bosch technical manual

2.2. Removing the battery

Make sure the system has been switched off before removing the battery. Turn the key in the lock a quarter turn and at the same time, tilt the battery to remove it out of the upper holder. Next remove it from the lower holder.

In order to insert the battery, place it with its contacts into the lower holder and tilt it into the upper holder as far as it can go until the lock audibly engages.

2.3. Important tips and advice about the battery

Only use original Bosch batteries which have been approved by the manufacturer for the GRACE MX II. Using other batteries can lead to injuries and the risk of fire.

If you want to stop using your GRACE MX II for a longer period of time (> 1 month), make sure that the battery is charged to approximately 60%, this is equivalent to 3 – 4 LEDs on the display. Check the charge level after 6 months. If only a single LED on the charge state indicator is still lit, recharge the battery to around 60%.

The battery guarantees a minimum of 500 full charge cycles. You can extend the life time of the battery by taking good care of it and by using it and storing it at the right temperatures. We recommend operating temperatures between +5 °C to +35 °C and an ambient temperature of +20 °C for storage.

Please follow the information in the original manual for the BOSCH Drive Unit Performance | Intuvia | PowerPack 400 | Charger

2.4. Switching the system on and off

To switch the Bosch system on and off, press the main switch on the battery.

The GRACE MX II drive can also be switched on and of from the on-board computer.
The display on the on-board computer is also switched on with the battery.
The on-board computer shows the charge state of the battery as well as the settings of the drive unit.

When switching on the bike, there must not be any load on the pedals on your GRACE MX II - otherwise, performance of the drive may be impaired. If the GRACE MX II was switched off accidentally while there was a load on the pedals, switch off the bike again and switch it back on without a load on the pedals.

The drive is activated as soon as you press down on the pedals. The level of assistance provided is based on the settings in the on-board computer. Once you stop pressing down on the pedals while riding, or once you have reached a speed of 25 km/h or 45 km/h*, the drive will de-activate assistance mode.

Assistance mode is re-activated automatically once you press down onto the pedals and the speed is less than 25 km/h/45 km/h*. To switch off the drive system, switch off the battery using the On/Off button or press the On/Off button on the on-board computer. If the drive is not used for around 10 mins, the drive will switch itself off automatically to save energy.

* MX II S-Pedelec

2.5. Adjusting the saddle

To adjust the height of the saddle, undo the SW5 hexagon socket in the clamp on the saddle post.

Adjust the height of the seat to your height by placing your heel on the pedal when the crank is at the lowest point. Your leg should almost fully extended.

Do not extend the saddle post further than the minimum depth mark.

Tighten the screw on the saddle post clamp (see torque table).

If you pull out the saddle post too far, the seat tube may no longer be able to support the saddle post sufficiently. The saddle post may come undone while riding or it may damage or break off the seat tube. Danger of injury or accident!

2.6. Adjusting the saddle angle

To change the angle and horizontal position of the saddle, undo the two SW6 hexagon sockets on the saddle clamp which are positioned immediately behind the saddle post above the rear wheel.

You can now move the saddle forwards and backwards in the guide and adjust the angle.

Afterwards, retighten both screws again (see torque table).

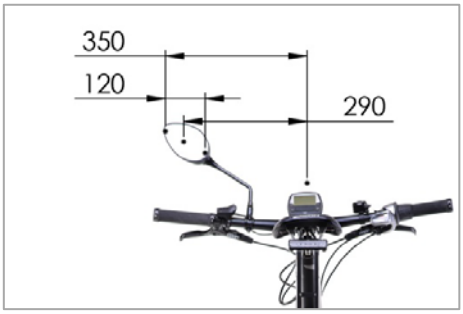
2.7. Adjusting the position of the brake lever

Undo the screw on the handlebar clamp with a Torx T25 spanner to twist and move the brake lever on the handlebar. After adjustment, re-tighten the screw again (see torque table).

The brake levers are configured correctly when your fingers can reach the brake levers when your arms are outstretched. The wrist should be stretched out as much as possible.

2.8. Rear-view mirror (S-Pedelec only)

Fix the rear-view mirror to the left side of the handlebars with a hexagon socket SW4 (0.16 in) without play.



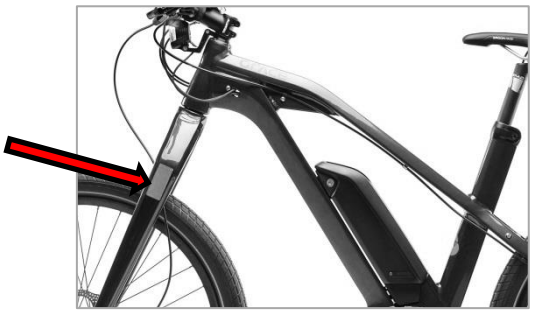
In the image, the mirror attachment is shown for driving on the right-hand side. The mirror must be attached to the right hand side for driving on the left-hand side.

2.9. Insurance plate (S-Pedelec only)

The insurance plate is fixed to the number plate holder beneath the saddle with two screws (M4x10) and two self-sealing nuts. Screws and nuts are not included in the scope of supply.

2.10. Side reflectors (S-Pedelec only)

The self-adhering side reflectors are secured to the side of the fork - as shown next.



2.11. Assembly manual, pedal reflectors for Schindelhauer pedals

Operating the vehicle without pedal reflectors is a violation of the StVZO. For this reason, we recommend assembly of the pedal reflectors.

Preparation

Make sure that all of the required components are present:

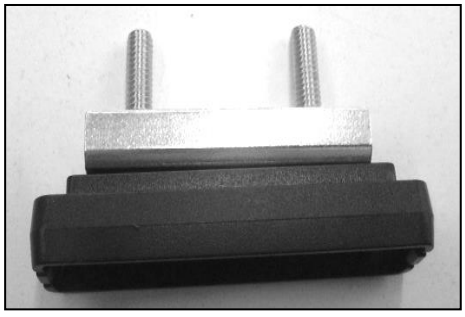
- 8x cross recessed screw M4x22mm
- 8x self-locking nuts M4
- 4x mounting wedge outside
- 4x mounting wedge inside
- 4x Reflector housing
- 4x Reflector
- 2x Schindelhauer pedals

Have the following tools available:

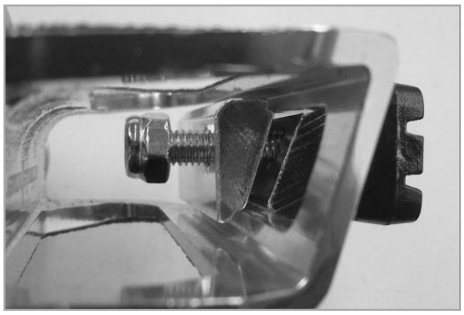
- Cross screwdriver PH2
- Wrench 7mm mouth width

Work steps

Take the reflector housing and plug the M4 screws into the existing long holes. Then push on this the mounting wedge.



Now place the components on the front of the pedals and push it from behind with the second mounting wedge. Then set the M4 nuts on the bolts. Please note that the inclination of the wedge is placed in a way that the reflector is perpendicular to the pedal surface.



Now tighten the screws using the above tool. Do not tighten the screws too firmly. You should still be able to align the reflector.

Align the centre of the reflector housing and tighten the screws permanently. Tip: If you hold the screwdriver still while tightening the screw and only turn with the wrench, the housing will slip less.

Clip the reflector into the reflector housing. Repeat the process for both pedals and on both sides of the pedals

3. Before each ride

3.1. Checking the wheels and tyres

Before each ride, check:

- The tyres and wheels for damage and any lodged foreign matter. Damaged wheels can lead to a loss of tyre pressure and other damage.
- The treads on the tyres.
- The concentricity of the wheels by allowing both wheels to spin freely. Poor concentricity may be caused by damaged tyres, broken axles or loose or broken spokes. Explore the origin of any rattling noises and where necessary check the bearings and screw connections.

The GRACE MX II comes with the following tyres as standard:

- Schwalbe Big Ben RaceGuard 60-559 (MX II Urban)
- CONTINENTAL MountainKing 2.2 (MX II Trail)

Observe the tyre pressure information provided by the manufacturer which is printed on the tyre wall! Exceeding the maximum permissible air pressure when pumping up the tyres can cause the tyre to puncture!

Note for S-Pedelec variant only: When replacing, make sure that only the tyres shown below and that tyres must be assembled with a ECE-R75 release. The wheel circumference can be adjusted via a setting function on the on-board computer.

Other tyres are also allowed by the manufacturer:

- X-King 2.4 Protection C275 b/b, skw, fb - size: 60-559
- X-King 2.2 Protection C275 b/b, skw, fb - size: 55-559
- MountainKing 2.4 Protection C287 b/b, skw, fb - size: 60-559
- RaceKing 2.2 Protection C256 b/b, skw, fb - size: 55-599
- Contact II C269 b/b reflex, wire - size: 47-559
- Cruise Contact C269 b/b, wire- size: 50-599

3.2. Checking the battery fitting

Before each ride, check that the battery lock cylinder is latched into position. If the battery is not locked into place via the lock, it may dislodge during the ride and fall off.

3.3. Checking the drive

Inadequately secured belt pulleys and guides may dislodge during the ride. Incorrectly adjusted drive belts may drift out of the pulleys while riding the bike. Risk of accident and injury!

Always follow all instructions concerning how to work with drive belts, especially when installing or removing the rear wheel. Extra care is needed to prevent damage to the drive belt.

Before each ride, check

- whether the drive belt is properly aligned and taught and the belt pulleys are firmly screwed on.
- that the belt guide is correctly installed to prevent the drive belt from skipping and leaving the rear belt pulley.

3.4. Checking the function and wear of the brake system

On disc brakes, the pressure point must be stable. When the pressure point is not reached after two thirds of the way, pull the lever several times ("pumps") until the linings rest against the disk. When the pressure point wanders during the ride, the braking system must vented in a specialist workshop.

Before each ride, carry out a brake check while the bike is stationary. To do so, pull the braking lever towards the handlebars with two fingers and normal braking force. The brake lever must not touch the handlebar grip.

Brake discs, brake callipers, and quick-release clamps and axle nuts can become very hot after braking, especially on longer rides. Danger of injury!

Check the braking discs:

- You should not be able to see any grooves or brake-outs with the naked eye. The friction surface must be free of oil and dirt.
- All screws must pre present and have a firm fit.

Check the brake callipers for oil leaks. Make sure the brake cables are kink-free. Check the seal on the brake cables.

Pressure point: Each brake has a certain amount of idle motion at the brake lever. When this idle motion is overcome with a small amount of handforce the brake will apply, the pressure point is reached. If the brake is properly adjusted and vented, applying a greater handforce will result in a higher braking performance while moving the brake lever a shorter distance.

Brake pads and discs wear due to friction. The more often you ride in a hilly environment or through rain or dirt, the higher the wear.

The braking system on the GRACE MX II has a fully-automatic pad synchronisation system. This system balances the wear on the brake pads so that the pressure point of the brake is always constant.

The wear condition of the brake pads can be checked with the transport securing mechanism. The pads are worn and must be replaced when the thick end of the transport securing mechanism no longer fits between the lugs on the brake pads while the brake is applied.

New brake pads must be run in until they reach their optimal braking performance. Accelerate the bike approx. 30-50 times to around 20 km/h (19 mph) and brake until the bike comes to a stop. If the necessary handforce stops falling to brake, the run-in procedure is closed.

3.5. Checking the spring fork (RockShox Domain, RockShox Sektor)

Before each ride, clean dirt and contaminants on the upper tubes and check them for scratches.

Lubricate the seals and tubes before each ride.

3.6. Checking the screw connections

Before each ride, check whether the following screw connections are tightened firmly:

- Securing the front wheel
- Securing the rear wheel
- Securing the grips and brake levers. It must not be possible to twist them.
- Securing saddle and saddle post

3.7. Lights

Before each journey, make sure that the lights are working. Make sure that the headlamp range on the headlight is adjusted to meet local national regulations. Correctly adjust the headlamp range of the light. Observe Chapter 4.7.

4. Function description

4.1. NuVinci N360 shifter *Urban*

On the NuVinci N360 rear wheel hub, the gear ratio is easily adjusted by pressing the shifter. The gear ratio appears on the shifter display as an easy-to-understand graphic - a hill for driving more slowly and a plain for quicker speeds. There are no fixed gears so you can adjust the gear ratio freely.

4.2. NuVinci N360 *rear wheel hub Urban*

Gera shifts take place inside the hub – soft and comfortably by means of maintenance-free shift elements which the hub protects from the elements.

To preserve the longevity of the NuVinci hub and the shifter, we recommend you only shift gears when there is a reduced load on the pedal.

Avoid shifting under full load and shifting against increased resistance when activating the shifter.
Read the information in the NuVinci N360 technical manual

4.3. Gear SRAM X9 *Trail*

The shifting process in the SRAM X9 derailleur system is carried out by activating the switch on the right handlebar grip.

Note:
To preserve the service life of your X9 derailleur system, we recommend you do not activate it while stationary and only when there is a reduced load on the pedal. Do not shift under full load.

Read the information in the SRAM X9 technical manual

4.4. Motor Bosch Drive Unit

The drive system has three sensors (speed, pedal frequency and torque applied by the driver) in order to optimally support the current driving situation.

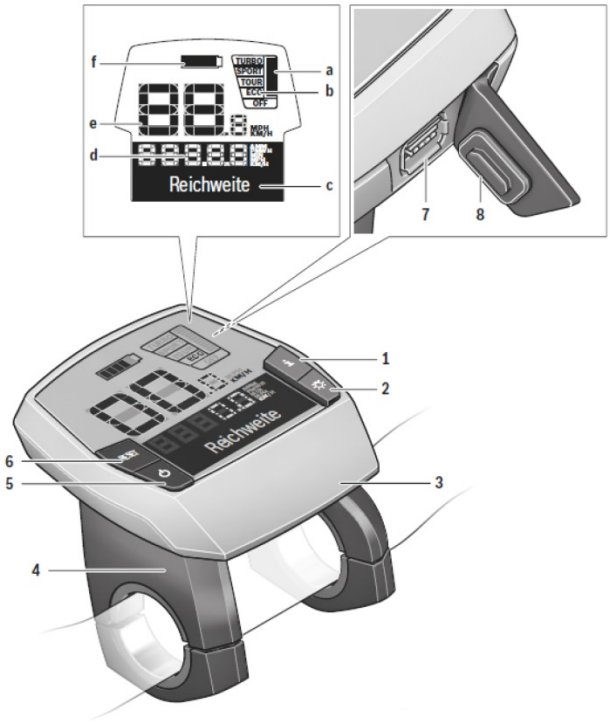
4.5. Bosch on-board computer

The display provides information about the: Support level, speed, range, average speed, maximum speed, distance and time.

You can choose between four drive types: Eco, Tour, Sport and Turbo.

Please follow the information in the original manual for the BOSCH Drive Unit Performance | Intuvia | PowerPack 400 | Charger

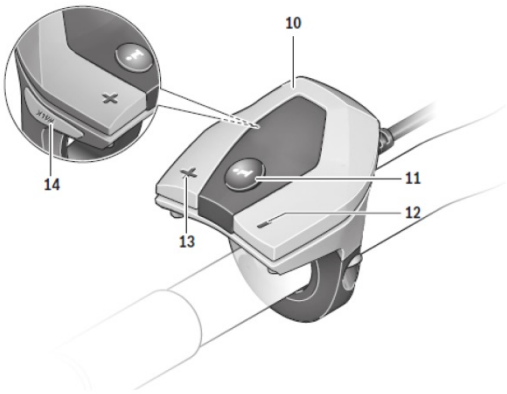
a. Engine output display
b. Assistance level display
c. Text display
d. Number display
e. Tachometer display
f. Battery charge state indicator

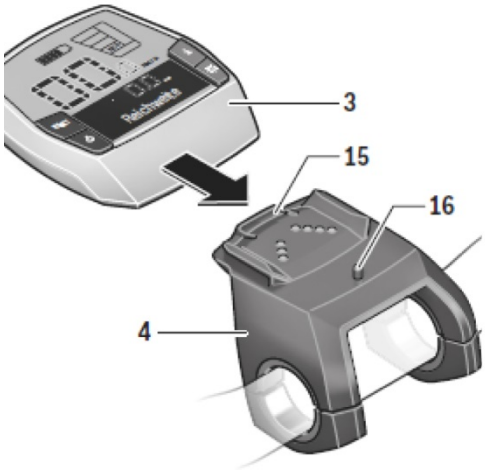


1. Display function "i" button
2. Lighting button
3. On-board computer
4. On-board computer holder
5. On/Off button on-board computer
6. Reset button **"Reset"**
7. USB port
8. Protective cap for USB port

4.6. Bosch control unit

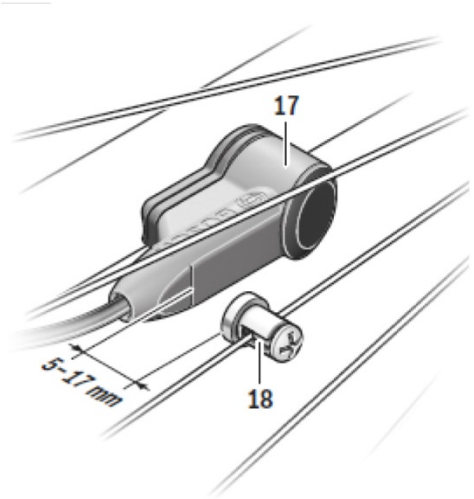
10. Control unit
11. Display function "i" button on the control unit
12. Lower value/scroll down button "**–**"
13. Increase value/scroll up button "**+**"
14. Push assistance button **"WALK"**





3. On-board computer
4. On-board computer holder
15. Lock-latch for on-board computer
16. Locking screw for on-board computer (included in delivery)

17. Speed sensor
18. Spoke magnet of the speed sensor

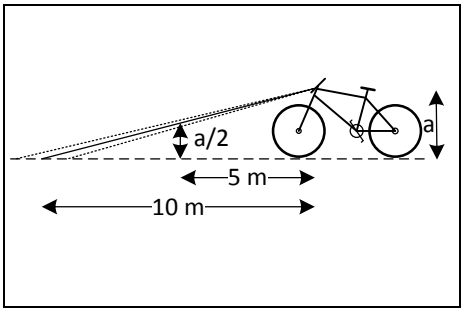


4.7. Lights

A precise lens system scatters light of a high-performance LED evenly on the road surface. This produces a high light intensity thus increasing safety.

Pressing the lighting button on the on-board computer switches on the LED headlight and the rear light.

The headlamp range must be adjusted according to local national regulations. The adjacent figure shows the requirements as applicable for Germany for example. The headlight must be adjusted so that the light cone hits the ground after 10 m, or at distance of 5 m (16.4 ft) is only half as high as when it was emitted.



Park the bike on an even surface. Undo the screw underneath the headlight with an Allen key SW 3 and tilt it accordingly.

4.8. RockShox Sektor RL *Trail*

A lockout function disables the fork's suspension function to allow you to pedal efficiently on a level road surface. To enable it, turn the blue "Compression" setting head on the fork crown to the right as far as it goes. The black setting head can be used to adjust the stiffness of the suspension. The right-hand fork has a red knob which can be used to adjust the speed with which the fork springs down.

4.9. RockShox Domain *Urban*

The spring fork has two setting options. The blue setting head on the top right, as seen from the driver's viewpoint, can be used to set the speed with which the fork is compressed. The lower right-hand fork has a red knob which can be used to adjust the speed with which the fork springs down.

5. Maintenance

5.1. Before every maintenance

Any time before conducting any maintenance work, make sure the drive is switched off.

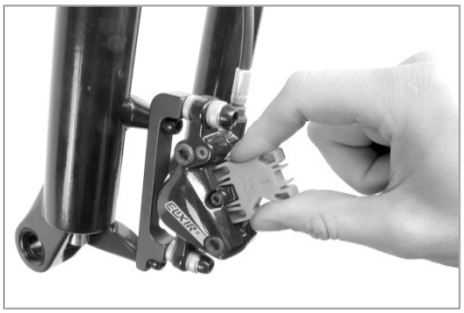
Respect the information in the original BOSCH user manual

5.2. Removing the front wheel spring fork

Undo the quick release on the axle of the front wheel. Firstly turn the lever 180° and then engage it into the recess of the axle. The axle can now be unscrewed with the aid of the lever.

Pull the quick-release axle out of the fork by moving it towards the right. While doing so, firmly hold the front wheel and undo the front wheel by removing it out of the fork in a downwards direction.

When the front wheel is removed, insert the transport safety mechanism between the brake pads to prevent unintended adjustment of the gaps between brake pads.

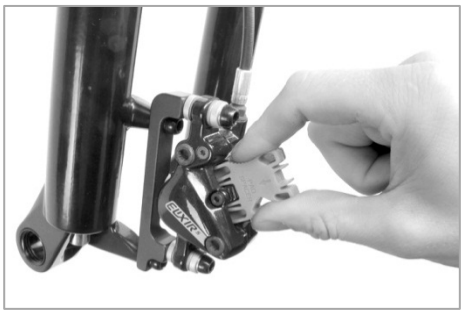


5.3. Removing the front wheel rigid fork

Undo the quick-release axle with a hexagon socket SW14mm.

Pull the quick-release axle out of the fork by moving it towards the right. While doing so, firmly hold the front wheel and undo the front wheel by removing it out of the fork in a downwards direction.

With the front wheel removed, insert the transport safety mechanism between the brake pads to prevent unintended adjustment of the gaps between brake pads.



5.4. Removing the rear wheel *Urban*

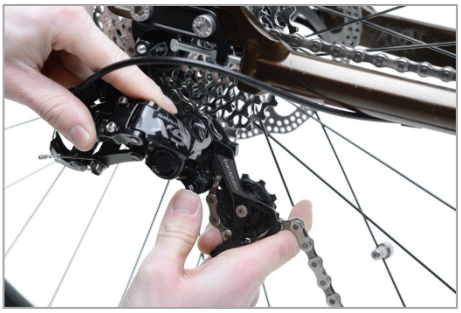
The rear wheel can be removed from the dropout by undoing the axle nuts SW15. Carefully slide the drive belt past the belt pulley.

With the rear wheel removed, insert the transport safety mechanism between the brake pads to prevent unintended adjustment of the gaps between brake pads.

Please also follow the guidelines in the NuVinci N360 manual

5.5. Removing the rear wheel *Trail*

Using the safety button attached to the derailleur, lock the derailleur to relieve the tension on the chain. Next, undo the quick release and guide the rear wheel out of the dropouts by moving it downwards.



Insert the transport safety mechanism between the brake pads to prevent unintended adjustment of the gaps between brake pads.

5.6. Installing the rear wheel *Urban*

Remove the transport safety mechanism. Carefully place the drive belt onto the belt pulley on the rear wheel.

Guide the rear wheel axle into the dropout. Position the rear wheel so that the two torque arm (key washer) on the left and right on the outside slide into the dropout. Make sure that the brake disc slides between the pads.

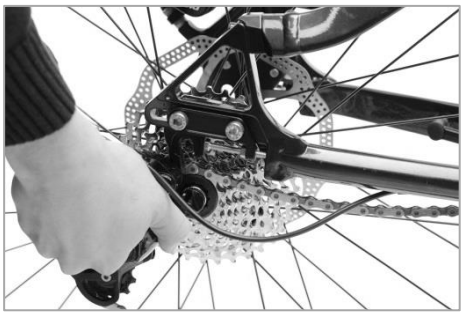
The rear wheel axle must lie evenly between in the two dropouts and the lugs of torque arms in the groove .

Attach both axle nut screws and tighten them alternately with a wrench SW15 to 30 Nm. Also refer to the settings in the torque table.

Please also follow the guidelines for installing the gears in the NuVinci N360 manual

5.7. Installing the rear wheel *Trail*

Remove the transport safety mechanism. Guide the rear wheel axle into the dropout. Make sure that the brake disc slides between the brake pads. Fix the rear wheel with the quick release at the rear. Undo the lock-latch of the derailleur so that the chain is retightened.



5.8. Tensioning and aligning the drive belt *Urban*

The drive belt Gates Carbon Drive is very strong and enduring. However, before and during assembly, show the utmost care to prevent damage to the carbon fibres which constitute the actual strength of the drive belt. Extreme bending and rotating causes cracks which can lead to faults to the belt under higher loads.

Please follow the guide about working with the belt on the Gates Carbon Drive system and the user manual for the Gates Carbon Drive.

When the tension on the drive belt is set too low, this can cause the drive belt to slip through on the timing pulleys.

This may cause damage to the carbon fibres inside the drive belt. If the drive belt has slipped, you must have it replaced by a specialist workshop.

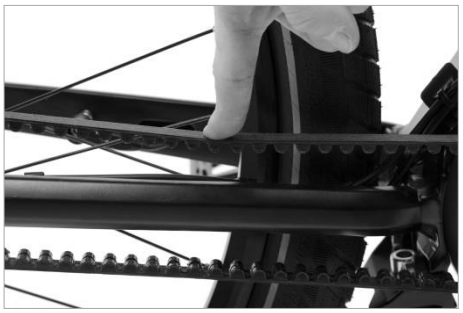
If the tension on the drive belt is too high, this may cause damage to the bearings and seals in the wheel hub. This also increases the wear and frictional losses in the entire drive.

Undo the four hexagon sockets (SW6) right and left on the dropouts as well as the screw for the torque arm (SW5).

Tighten the belt by tightening the setting screw on the dropouts which can be moved horizontally, with a hexagon socket SW5 (with spherical head). You can use the open end spanner SW10 to lock the setting screw.

Press the belt in the middle between the front and rear pulley downwards on its upper side with a finger.

The belt is tensioned correctly when the belt can be pressed downwards by approx. 12mm.



As the tension may vary slightly along the belt, this procedure should be performed while the belt moves further step by step.

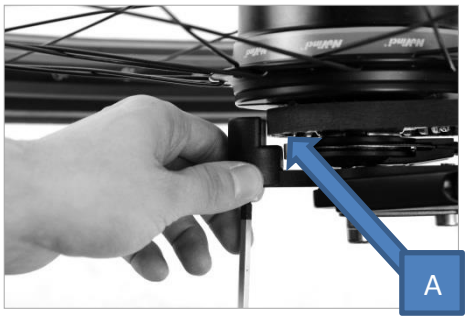
Turn the pedal crank one turn and repeat the measurement. If the tension on the belt is too high or too low, repeat this procedure until the measurement result meets the requirements.

Firmly tighten the four hexagon sockets (SW6) right and left on the dropouts as well as the screw for the torque arm (SW5) (see the torque table).

5.9. Setting the belt guide *Urban*

The gap A between the belt guide and the back of the belt should lie between 1 - 1.5 mm (0.04 - 0.06 in). To adjust the gap undo the screw with a hexagon socket SW5 (0.2 in) and move the belt guide in the elongated bore.

Tighten the screw again with a hexagon socket SW5 (0.2 in) (see torque table).



5.10. Drive chain *Trail*

The chain should always be metallically clean and have a sufficient coating of lubricant.

If the chain is dry (without lubrication) or dirty, clean it with a clean or slightly oily cloth and then coat it with a standard, commercially available bicycle chain oil and leave it overnight.

Remove any excess oil the following day with a cloth.

5.11. Switching gears *Trail*

For information about the gearshift adjustment, please refer to the attached manual from manufacturer SRAM

5.12. Tyre change

Remove the valve cap on the tube and, where present, the knurled nuts on the valve connection. Remove the air from the tube by pressing the valve pin. Using a tyre lever, remove the tyre from the rim. Replace faulty tyres or tubes.

Always replace the tube when replacing an existing tyre with a new tyre!

Pull the tyre with one side onto the rim. Pay attention to the tyre direction stamped onto the tyre by the manufacturer.

Push the valve through the hole and place the tube into the rim well.

Using the assembly aid, lever the wheel rim over the rim flange. Pump up the tube until the tyre takes shape. Make sure it is positioned correctly in the rim.

Pump up the tyre as per the manufacturer's instructions and again check that the tyre is positioned correctly in the rim.

Tighten the knurled nuts and screw the valve cap onto the valve.

5.13. Assembly and disassembly of the pedals

Apply a thin layer of grease to the threads on the pedal axis and crank.

First of all, screw the pedal loose by hand. Make sure the parts are positioned at the correct angle to each other and do not tilt.

The right pedal has a right-hand thread, the left pedal a left-hand thread to the pedal axle for assembly onto the cranks. The right pedal is screwed in a clockwise direction and the left pedal anti-clockwise.

Move the crank into a horizontal position so that the pedal is facing the front wheel. Place the open end spanner SW15 on the pedal axle and hold the crank firmly on the opposite side.
Tighten the pedal with the torque according to the data provided by the crank manufacturer.

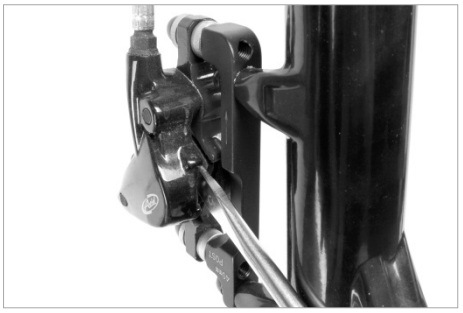
Disassembly proceeds in the opposite direction to assembly.

5.14. Replacing the brake pads

Remove the safety clip from the guide pin.

Use a hexagon socket SW 2.5 to remove the guide pin from the brake calliper.

Use a slotted screwdriver to press the brake pads back into the piston.



Remove the H springs with the installed brake pads out of the brake calliper.

Replace both brake pads when the total thickness is less than 3mm per pad.

Place the H springs with the new brake pads into the brake calliper.

Tighten the screw fitting before applying the safety clip.

6. Transport

To prevent damage to your GRACE MX II during transport, please heed the following instructions:

Before transporting on a car roof or tailgate carrier, do not remove firmly-fixed accessories such as the display unit.

Slide the transport safeties into the brake callipers provided that you dismantle the wheels.

Transporting the GRACE MX II battery in a passenger aeroplane is not permitted.

Transporting the GRACE MX II with its battery installed on a car with a roof or tailgate carrier is not permitted. Remove the battery before transport.

The weight of the bike places special requirements on a car roof or tailgate support. Unsuitable vehicle supports can rupture while riding or may not be able to support the GRACE MX II reliably.

Only use suitable bike carriers for the transport. Take notice of the information given in the vehicle manual on roof loads and bearing loads as well as the instructions in the assembly/operating manual for the bike carrier.

7. Cleaning and maintenance

Do not use high-pressure cleaners to clean the GRACE MX II. The strong water jet from a high-pressure cleaner can cause damage to tyres, drive belts, bearings or electric components which are not visible externally. Components damaged in such a way may fail unexpectedly. Risk of accident!

In particular, take the following instructions into account when maintaining your GRACE MX II:

Use as little water as possible and keep it away from electrical contacts. Clean the vehicle with a soft sponge or soft brush. Clean the battery carrier on the down tube with a damp cloth. Allow the electrical plug connections to dry before putting the bike back into operation.

8. Wear parts, maintenance, vehicle inspection after an accident

Some parts and components on your GRACE MX II are susceptible to function-related wear. For this reason, such parts need to be monitored very closely and regularly maintained or replaced.

The wear parts include:

8.1. Tyres

Tyres wear according to how the GRACE MX II is used and can vary considerably from one rider to the next. Heavy braking which causes the wheel to lock up reduces the service life of the tyre considerably. The tyre pressure should be checked regularly and the tyres must be inflated to the value indicated by the tyre manufacturer.

8.2. Brake pads

The brake pads are subject to function-related wear which is heavily dependent on how the GRACE MX II is used. When riding along tracks with heavy drops or when using it for bike sports, it may be necessary to replace the brake pads at shorter intervals. It is therefore essential that you check the wear on your brake pads regularly. When necessary, have them replaced by a specialist dealer.

8.3. Belt

Always replace the Gates carbon drive belt when damaged due to improper handling or serious external influences. For instance, when a stone, twig or piece of clothing is caught in the belt and drawn between the belt and the belt pulleys. This kind of external influence can cause damage to the sensitive carbon fibres inside the belt even if there does not appear to be any damage to the belt on the outside. If you suspect the belt may be damaged, replace it as a preventative measure against accident or injury.

8.4. Replacing the belt pulleys when they are damaged

The belt pulleys must be replaced if they are damaged by serious external influences. For instance, if you land hard with the front belt pulley when riding over a rock or twig, it may bend, and in this case will need to be replaced. Stones which are drawn in and get in between the belt and belt pulleys can damage the teeth on the belt and may even damage or tear off some of them. The affected belt pulley will need to be replaced in this case as well. Whether or not you will also need to have the belt replaced will depend on the criteria in the previous section. If there is wear on the drive and all components were in use for the same time, we generally recommend you replace all components even if only one of the components has reached its wear limit.

8.5. Chain *Trail*

The chain is susceptible to function-related wear which depends on maintenance, repair and the how the GRACE MX II is used (performance, dirt, salt, riding in rain, etc.). The service life can be extended by regularly cleaning and lubrication. However, the chain will need to be replaced when it reaches its wear limit.

8.6. Chain wheels, cartridge, rear derailleur rollers and the bottom bracket *Trail*

All sprockets, chain wheels and the bottom bracket are susceptible to wear due to their function. The wear on these components depends on maintenance, repair and the how the GRACE MX II is used (performance, dirt, salt, riding in rain, etc.).

8.7. Shift cables

The Bowden cables on the gears must be regularly maintained and may need to be replaced. In particular, this can be case when GRACE MX II is often left outdoors and exposed to the elements.

8.8. Handlebar grips

Handlebar and grip surfaces are subject to function-related wear and may need to be replaced at regular intervals. The grips must always be firmly attached to the handlebars.

8.9. Lubricants

Lubricants change their properties in time. For this reason you should regularly clean and re-lubricate all lube points to prevent increased wear on the affected parts and bearings.

8.10. Handlebars and saddle post

Both the handlebars and the saddle post are subject to strong dynamic loads while riding. Therefore, check them at regular intervals for externally visible damage, replace when necessary. We also recommend you replace these parts every two years with heavy use of the GRACE MX II.

8.11. Moving parts and bearings

All moving parts and bearings are subject to use-related wear. The degree of wear depends on how the bike is maintained, services and how it is used (distance, riding in rain, dirt, salt).

8.12. Frame paint and coating

The coatings on the parts of your GRACE MX II protects them from corrosion. Regularly check all paint surfaces for damage and touch up these surfaces right away. This also preserves the look of your bike.

8.13. Maintenance

When you bought your GRACE MX II your dealer provided you with a service manual. Please keep to the inspection intervals in the manual for your own safety and riding pleasure!

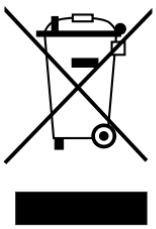
We recommend your dealer performs an initial inspection after 100 kilometres. Spokes, brakes, gears and bearings may shift position in this run in phase due to the parts breaking in. Your GRACE dealer knows your bike very well and has the right tools to maintain your GRACE bike.

After a crash or an accident on your GRACE MX II, you must take your bike to a specialist dealer for a thorough inspection.

Damage caused by crashes or improper handling must only be fixed by your GRACE dealer!

The faulty parts, especially forks, handlebars, frame, handlebar stem , saddle post, pedals or crank arms must be replaced immediately due to the risk of rupture.

8.14. Disposal



Waste electrical devices and batteries should never be discarded with the household waste! They must be separated according to Guideline 2002/96 EC for waste electrical and electronic equipment and handed over to a professional collection point for environmentally friendly recycling.

Please take waste electrical equipment at a local collection point. Separate packaging materials by type and dispose of them according to local regulations. For details, please contact your local authority.

Never dispose of batteries with the household waste! According to the guideline 2006/66/EC you are required to remove batteries from the bike and to hand them over to your dealer, a municipal collection point or other shops which sell batteries.

9. Technical data GRACE MX II Urban

Frame	Aluminium 6061
Forks	Rigid fork 26“ Unicrown / RockShox Domain RC
Motor	Bosch Drive Unit Performance 250 Watt/ Bosch Drive Unit 350 Watt
Torque	max. 48 Nm
Batteries	Bosch Li-Ion 36V/11Ah 400 Wh
Display	Bosch 4-Mode LCD display, background lighting
Forks bearing	Cane Creek 40 series
Braking	Avid Elixir 5, 200mm (front) and 180mm (back)
Drive	Gates Carbon Drive with NuVinci N360 hub
Tyres	Schwalbe Big Ben RaceGuard 60-559
Charger	Bosch Charger 4 Ah/42V
Weight	24.1 kg
Special features	4 drive modes (Eco, Tour, Sport, Turbo)
Range	max. 175 km* / max. 120 km**
Saddle post	Truvativ Stylo
Handlebars	BikeLink 710mm
Handlebar grips	Velo
Stem	Truvativ Stylo
Saddle	Ergon SM30 MTB
Alloys	Rigida Taurus 21
Front wheel hub	KT Industries
Rear wheel hub	NuVinci N360 hub
Pedals	Schindelhauer
Controller	Bosch HMI unit
Cranks	Lasko
Permissible total weight	150 kg
Frame sizes	Size M or L
Charge time	Approx. 3.5 hours
Headlight	Busch & Müller Lumotec Lyt 42
Rear light	DToplight Mini LED* SHINYO LED rear light (E-marked)**

** MX II S-Pedelec
* MX II Pedelec

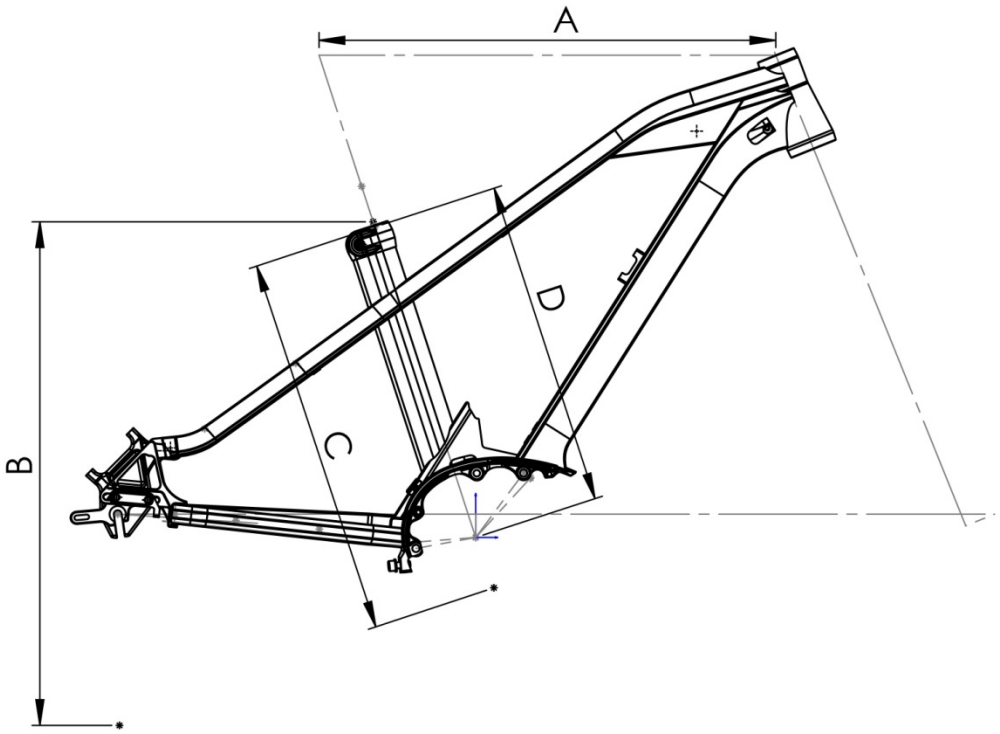
10. Technical data GRACE MX II Trail

Frame	Aluminium 6061
Fork	RockShox Sektor Gold 140 mm RL
Motor	Bosch Drive Unit Performance 250 Watt/ Bosch Drive Unit 350 Watt
Torque	max. 48 Nm
Batteries	Bosch Li-Ion 36V/11Ah 400 Wh
Display	Bosch 4-Mode LCD display, background lighting
Forks bearing	Cane Creek 40 series
Braking	Avid Elixir 5, 200mm (front) and 180mm (back)
Drive	SRAM X9 derailleur system
Tyres	Continental Mountain King 2.2, 26"
Charger	Bosch Charger 4 Ah/42V
Weight	21.9 kg
Special features	4 drive modes (Eco, Tour, Sport, Turbo)
Range	max. 175 km* / max. 120 km**
Saddle post	Truvativ Stylo
Handlebars	BikeLink 710mm
Handlebar grips	Velo
Stem	Truvativ Stylo
Saddle	Ergon SM30 MTB
Alloys	Rigida Taurus 21
Front wheel hub	SRAM X9 15*100
Rear wheel hub	SRAM X9
Pedals	Wellgo
Controller	Bosch HMI unit
Cranks	Lasko
Permissible total weight	150 kg
Frame sizes	Size M or L
Charge time	Approx. 3.5 hours
Headlight	Busch & Müller Lumotec Lyt 42
Rear light	DToplight Mini LED* SHINYO LED rear light (E-marked)**

** MX II S-Pedelec
* MX II Pedelec

11. Frame sizes

	A Top tube	B Standover height	C Inside leg measurement	D Seat tube height
GRACE MX II Size M	**588mm**	**790mm**	**559mm**	**420mm**
GRACE MX II Size L	**622mm**	**790mm**	**675mm**	**500mm**



12. Torques

Torques for connecting elements of wheels	
Rear wheel axle nuts	30 Nm
Dropout on frame (M8)	16 Nm
Torque arm, left dropout	6 Nm
Torques for handlebars and stem	
Stem handlebars	5 Nm
Stem forks	5 Nm
Gripshift	2 – 2.5 Nm (data from NuVinci)
Brake lever	2.8 – 3.4 Nm (data from SRAM)
Torques for add-on parts	
Brake callipers	8 – 10 Nm (data from SRAM)
Screw fitting for brake pads	1 Nm
Post-mount adapter	9 – 10 Nm (data from SRAM)
Saddle clamp	8 Nm
Saddle fixing	10 Nm
Brake disks	6.2 Nm (data from SRAM)

13. Warranty

A statutory warranty period of two years has been in effect since 01/01/2002. The warranty period begins when you receive your GRACE MX II from your dealer, who is your contact person for all warranty issues.

Please keep the new owner's certificate and invoice or till receipt in a safe place for the duration of the warranty period.

A warranty claim is valid under the following conditions:

- If there is a manufacturing or material defect, or misinformation,
- if the claimed damage already existed at the time of the handover,
- if the change to the product was not the result of function-related wear or ageing, and
- if the damage did not originally arise as the result of using the bike as intended,

The following is excluded from the warranty:

- All wear parts, according to the list of wear parts under point Wear parts, maintenance, vehicle inspection after an accident unless production or manufacturing defects are involved;
- damage arising from the use of the bike in competition;
- damage arising through improper repair tools and inadequate maintenance;
- repairs which was the result of the use of used parts;
- damage which was the result of retrofitting non-standard equipment and technical modifications.

When purchasing your GRACE MX II you receive these instructions as well as with the instructions and warranty and warranty terms and conditions from the manufacturers of add-on components.

Please carefully read through these documents as well!

14. EC Declaration of Conformity

Name/address of the manufacturer: MIFA AG, Kyselhäuser Straße 23,
D-06526 Sangerhausen, Germany

Product name: EPAC/Pedelec (vehicle with electric motor as auxiliary drive)

This declaration only concerns products in the condition they were placed on the market; parts added by the end user and/or post-purchase interventions are not considered. This declaration becomes invalid when the products are converted or modified without agreement.

Type: MGE-014-01, MGE-014-03, MGE-014-05, MGE-014-07, MGE-014-09, MGE-014-11, MGE-014-13, MGE-014-15 Year of manufacture: 2014

The designated product meets the requirements of the Guidelines:

- Machinery Directive **2006/42/EC**
- EU Directive on Electromagnetic compatibility 2004/108/EC
- Electrical Equipment Directive **2003/95/EC**
- Directive on the restriction of certain hazardous substances in electrical and electronic equipment **2011/65/EU**

Related harmonised norms and other technical norms:

DIN EN 15194:2009	Cycles - Electrically power assisted cycles - EPAC Bicycles
DIN EN ISO 13849:2008	Safety of machinery - Safety-related parts
DIN EN 62079:2001	Preparation of instructions for use – Structuring, content and presentation
DIN EN 62321:2011-04	Methods for determining certain substances in electricalproducts

The designated product meets the requirements of the Guidelines:

Product name: The Bosch charger
Charger for charging electro-chemical energy storage devices

Type: satisfies
0 275 007 907 relevant EU guidelines

In the event of modifications of the designated equipment we did not approve, this certificate loses its validity
Authorised documentation representative: Karl-Heinz Nicolai; Kyselhäuser Straße 23; D-06526 Sangerhausen

Sangerhausen, 11.02.2014
(Place, date)

(legally binding signature of the publisher)
CEO Karl-Heinz Nicolai